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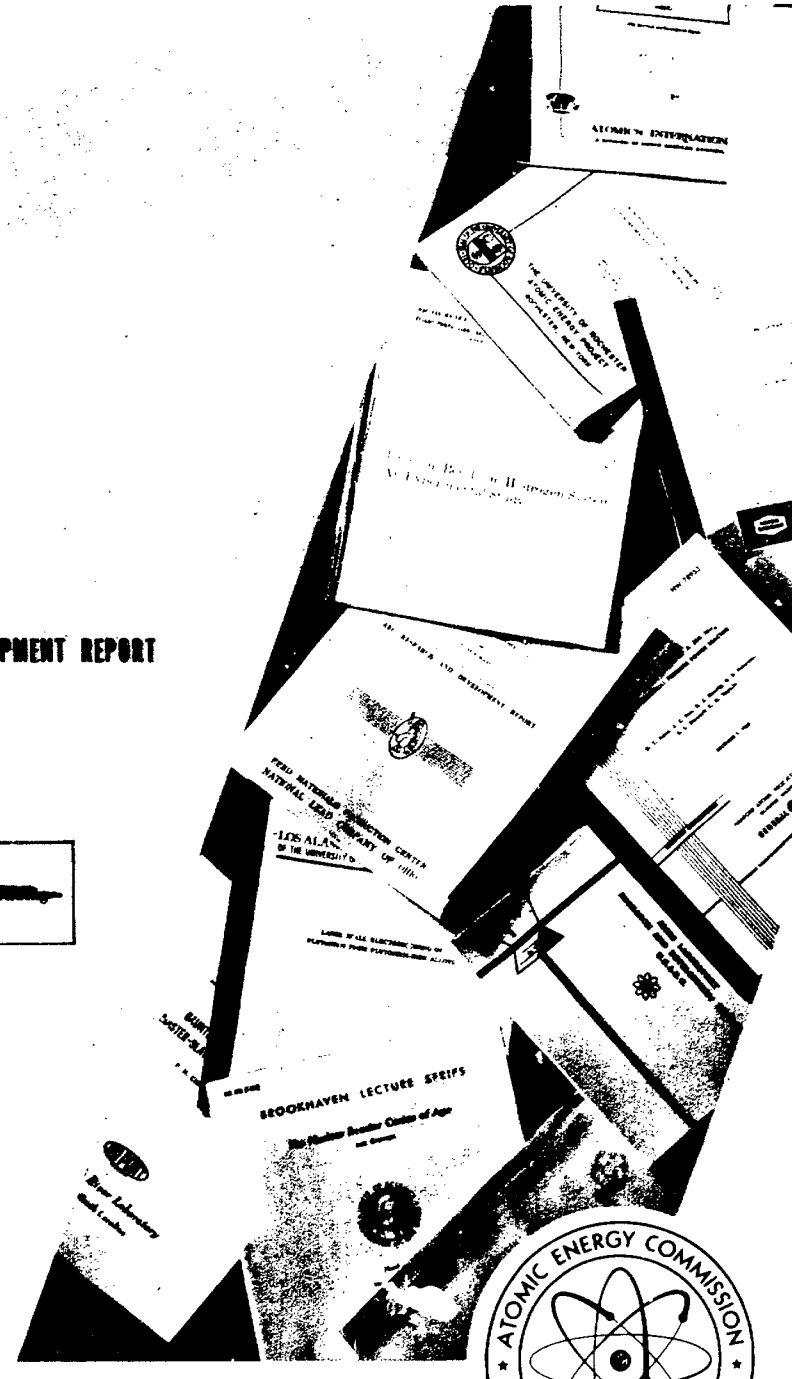

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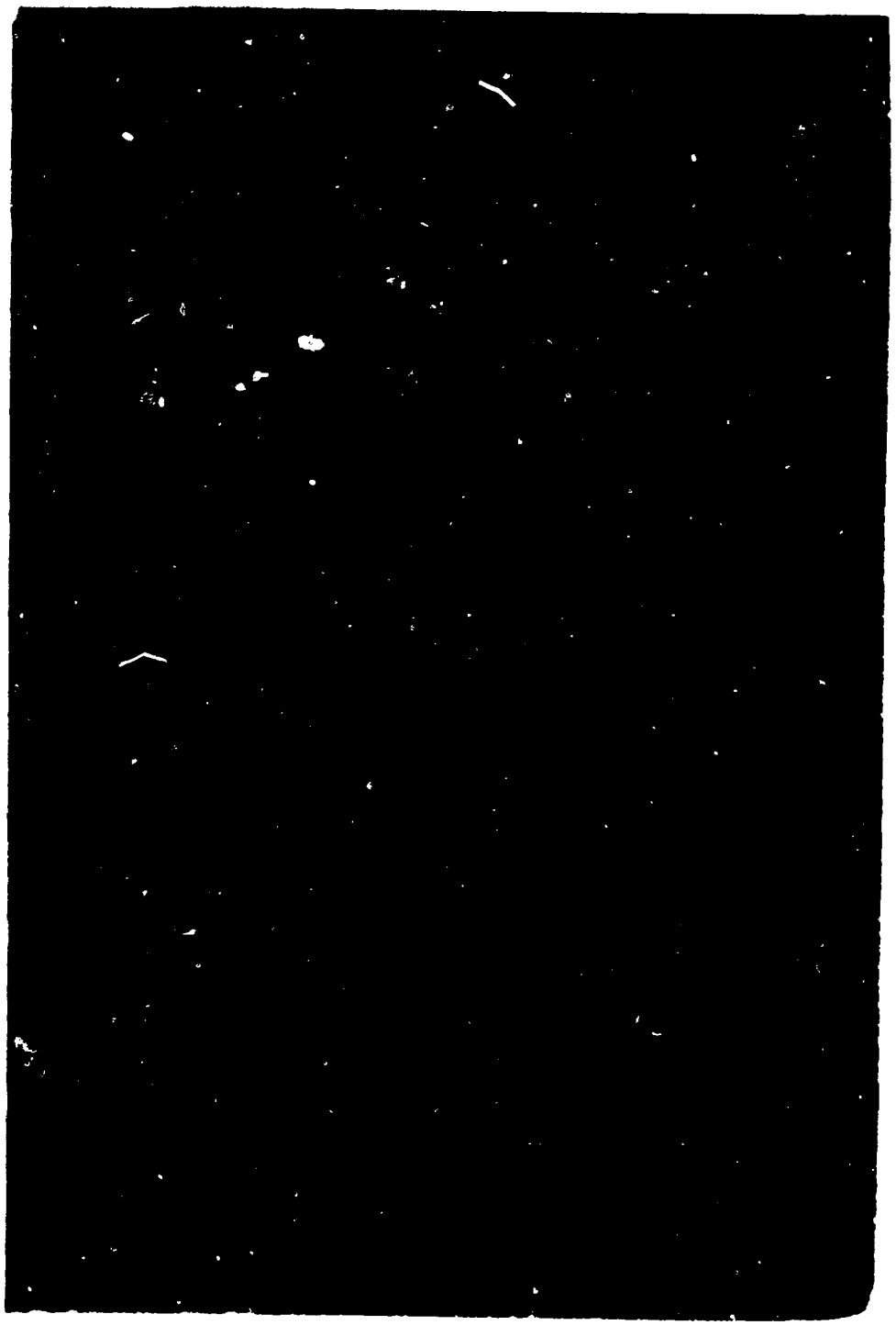

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U.S.S. LST 220
TEST ABLE (8)

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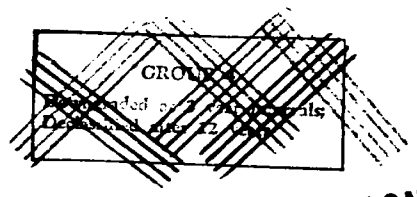

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By John A. Tyelle USN Date MAY 16 1950

APPROVED:

F.X. Forest,
Captain, U.S.N.

[redacted]

USS LST 220

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U.S.S. LST 220

SHIP CHARACTERISTICS

Building Yard: Chicago Bridge and Iron Co., Seneca, Illinois.

Commissioned: 26 August 1943.

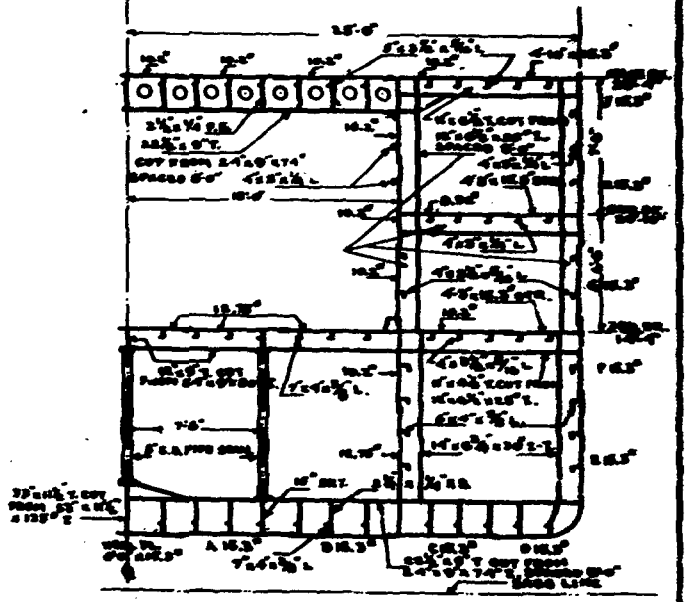
HULL

Length Overall: 328 feet 0 inches.
Length on Waterline: 316 feet 0 inches.
Beam (extreme): 50 feet 0 inches.
Drafts at time of test: Fwd. 6 feet 1 inch.
Aft. 10 feet 3 inches.
Limiting Displacement: 4,080 tons.
Displacement at time of test: 2,888 tons.

MAIN PROPULSION PLANT

Main Engines: Two General Motors Diesels, type, 12 - 567 A. One per main shaft.
Reduction Gears: Type: "Falk" - Single reduction. One per engine.
Propellors: Two are installed in ship.
Main Shafts: Two are installed in ship.
Ships Service Generators: Three - 100 KW. - 230 volts D.C. units are installed.

[redacted]



MIDSHIP SECTION
TEST A

PAGE 4 OF ..3

LST 220

TECHNICAL INSPECTION REPORT

OVERALL SUMMARY

I. Target Condition After Test.

(a) Drafts after test, list, general areas of flooding, sources.

There was no flooding, hence no change in drafts or list.

(b) Structural Damage.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

There was no structural damage in way of electrical equipment.

(c) Other damage.

HULL

Not observed.

MACHINERY

The machinery of this vessel was not damaged by Test A. The vessel shifted berths under her own power after Test A, at which time all machinery was tested.

ELECTRICAL

No damage occurred to electrical equipment due to Test A.

II. Forces Evidenced and Effects Noted.

(a) Heat.

HULL

Heat emanated from a relative bearing of 120 degrees. Paint was scorched only in small local areas where it had been thickly applied. Manila lines made up on the starboard lifeline are generally scorched. Two fires started in manila line.

MACHINERY

No evidence.

ELECTRICAL

No evidence of heat in way of electrical equipment.

(b) Fires and Explosions.

HULL

A manila line made up on the lifeline at frame 11, starboard, burned. Two wash deck hoses stowed at frame 88, starboard, on the after bulkhead of the deck house, burned completely. This fire ignited and completely destroyed the contents of an adjacent gear locker. Paint in the area is badly burned.

MACHINERY

No evidence.

ELECTRICAL

There was no fires or explosions in way of electrical equipment.

(c) Shock.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of shock in way of electrical equipment.

(d) Pressure.

HULL

Soot was blown from ventilation ducts and there was some elastic deflection of the main deck.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of pressure in way of electrical equipment.

(e) Effects peculiar to the Atomic Bomb.

HULL

None.

MACHINERY

None.

ELECTRICAL

Radiant heat was evident on exposed surfaces. No other effect peculiar to the Atom Bomb was noted. The radiant heat had no apparent effect on any electrical equipment.

III. Results of Test on Target.

(a) Effect on machinery, electrical, and ship control.

HULL

Not observed.

MACHINERY

None.

ELECTRICAL

No damage was apparent to electrical machinery or ship control.

(b) Effect on gunnery and fire control.

HULL

Not observed.

MACHINERY

No comment.

ELECTRICAL

No damage was apparent.

(c) Effect on watertight integrity and stability.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

No electrical damage affected watertight integrity or stability.

(d) Effect on personnel and habitability.

HULL

Exposed personnel would probably have been injured by heat and radiation. Habitability is not affected.

MACHINERY

None.

ELECTRICAL

No electrical damage affected personnel or habitability.

(e) Effect on fighting efficiency.

HULL

Other than possible injury of exposed personnel, there would have been no effect on fighting efficiency.

MACHINERY

None.

ELECTRICAL

No electrical damage affected the fighting efficiency of the vessel.

IV. Summary of Observer's Impressions and Conclusions.

HULL

No comment.

MACHINERY

LST 220 was outside the effective range of the explosion during Test A.

ELECTRICAL

No damage was evident on any electrical equipment on this vessel. It appears that the effects of the Atom Bomb at the distance of this vessel from the center of the blast are not such as to require special designs or installation arrangements for electrical equipment.

V. Preliminary Recommendations.

HULL

None.

MACHINERY

None.

ELECTRICAL

None.

TECHNICAL INSPECTION REPORT

SECTION I - HULL

GENERAL SUMMARY OF HULL DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

There was no flooding, hence no change in drafts or list.

(b) Structural Damage.

None

(c) Other damage

Not observed.

II. Forces Evidenced and Effects Noted.

(a) Heat.

Heat emanated from a relative bearing of 120 degrees. Paint was scorched only in small local areas where it had been thickly applied. Manila lines made up on the starboard lifeline are generally scorched . Two fires started in manila line.

(b) Fires and Explosions.

A manila line made up on the lifeline at frame 11, starboard, burned. Two wash deck hoses stowed at frame 88, starboard, on the after bulkhead of the deck house, burned completely. This fire ignited and completely destroyed the contents of an adjacent gear locker. Paint in the area is badly burned.

(c) Shock.

None.

(d) Pressure.

Soot was blown from ventilation ducts and there was some elastic deflection of the main deck.

(e) Effects apparently peculiar to the Atom Bomb.

None.

III. Effects of Damage.

(a) Effect on machinery, electrical, and ship control.

Not observed.

(b) Effect on gunnery and fire control.

Not observed.

(c) Effect on watertight integrity and stability.

None

(d) Effect on personnel and habitability.

Exposed personnel would probably have been injured by heat and radiation. Habitability is not affected.

(e) Effect on fighting efficiency.

Other than possible injury of exposed personnel, there would have been no effect on fighting efficiency.

IV. General Summary of Observers' Impressions and Conclusions.

No comment.

V. Preliminary General or Specific Recommendations of Inspection Group.

None.

VI. Instructions for loading the vessel specified the following:

ITEM	LOADING
Fuel oil	Minimum
Diesel oil	Minimum
Ammunition	10%
Potable and reserve feed water	No restriction
Salt water ballast	No restriction

Details of the actual quantities of the various items aboard are included in Report 7, Stability Inspection Report, submitted by the ship's force in accordance with "Instructions to Target Vessels for Tests and Observations by Ship's Force" issued by the Director of Ships Material. This report is available for inspection in the Bureau of Ships Crossroads Files.

DETAILED DESCRIPTION OF HULL DAMAGE

A. General Description of Hull Damage.

The only hull damage is minor damage to paint caused by a small fire. A general view of the ship is shown on page 30.

B. Superstructure.

There is no significant damage. Dirt was shaken loose from inside ventilation ducts and was blown into interior spaces. A fire burned paint on the outside of the deck house.

C. Turrets, Guns, and Directors.

No damage.

D. Torpedo Mounts, Depth Charge Gear.

Not applicable.

E. Weather Deck.

No damage. Scratch gages recorded about 3/4 inch elastic deflection of the main deck.

F. Exterior Hull.

No damage.

G. Interior Compartments (above w.l.).

No damage.

H. Armor Decks and Miscellaneous Armor.

Not applicable.

I. Interior Compartments (below w.l.).

No damage.

J. Underwater Hull.

No damage.

K. Tanks.

No damage.

L. Flooding.

None.

M. Ventilation.

No damage. Dirt was blown from inside ventilation ducts into interior spaces.

N. Ship Control.

No damage.

O. Fire Control.

No damage.

P. Ammunition Behavior.

No damage.

Q. Ammunition Handling.

No damage.

R. Strength.

No damage.

S. Miscellaneous.

Paint is scorched only in small local areas where it had been applied infairly thick coats. Manila line made up on the starboard lifeline is generally scorched. A manila hawser made up on the lifeline at frame 11, starboard, burned. Two cotton wash deck hoses stowed on the deck house bulkhead at frame 48, starboard burned. This fire ignited and completely burned the contents of an adjacent gear locker. Paint on the adjacent bulkhead is badly burned. (Photo. 2047-7, page 31).

TECHNICAL INSPECTION REPORT

SECTION II - MACHINERY

GENERAL SUMMARY OF MACHINERY DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

No data taken by machinery group.

(b) Structural damage.

No comment.

(c) Other damage.

The machinery of this vessel was not damaged by Test A. The vessel shifted berths under her own power after Test A, at which time all machinery was tested.

II. Forces Evidenced and Effects Noted.

(a) Heat.

No evidence.

(b) Fires and explosions.

No evidence.

(c) Shock.

No evidence.

(d) Pressure.

No evidence.

(e) Effects apparently peculiar to the atom bomb.

None.

III. Effects of Damage.

(a) Effect on machinery and ship control.

None.

(b) Effect on gunnery and fire control.

No comment.

(c) Effect on water-tight integrity and stability.

No comment.

(d) Effect on personnel and habitability.

None.

(e) Total effect on fighting efficiency.

None.

IV. General Summary.

LST 220 was outside the effective range of the explosion during Test A.

V. Preliminary Recommendation.

None.

DETAILED DESCRIPTION OF MACHINERY DAMAGE

A. General Description of Machinery Damage.

(a) Overall condition.

The overall condition of the machinery was not changed by Test A.

(b) Areas of major damage.

None.

(c) Primary cause of damage in each area of major damage.

Not applicable.

(d) Effect of target test on overall operation of machinery plant.

The Target test had no effect on the overall operation of the machinery plant. All machinery has been operated since the test.

B. Boilers.

The heating boiler and its appurtenance were not damaged by Test A.

C. Blowers.

Included under B.

D. Fuel Oil Equipment.

Included under B.

E. Boiler Feedwater Equipment.

Included under B.

F. Main Propulsion Machinery.

There is no damage. The engines operated satisfactorily when the vessel shifted berths after Test A.

G. Reduction Gears.

Undamaged. Performance was normal with the ship underway.

H. Shafting and Bearings.

Undamaged. Performance was normal with the ship underway.

I. Lubrication System.

The lubrication system has been tested under normal working conditions and is undamaged.

J. Condensers and Air Ejectors.

Not applicable.

K. Pumps.

All pumps have been tested under normal operating conditions. There is no damage.

L. Auxiliary Generators (Turbines and Gears).

Not applicable.

M. Propellers.

There is no damage apparent on visual examination from the surface of the water. Operation was normal with the ship underway.

N. Distilling Plant.

Undamaged. The plant has been tested for capacity and quality, and functions normally.

O. Refrigeration Plant.

Undamaged. The plant has been operated under normal service conditions, and functions normally.

P. Winches, Windlasses, and Capstans.

All deck equipment has been tested under normal load. No damage was revealed.

Q. Steering Engine.

The steering engine is undamaged as indicated by test under normal operating conditions.

R. Elevators, Ammunition Hoists, etc.

Undamaged. The tank deck elevator has been tested, and functions normally.

S. Ventilation (Machinery).

Undamaged. All ventilating machinery is operating normally.

T. Compressed Air Plant.

Undamaged. The air compressors have been tested for full pressure operation.

U. Diesels (Generators and Boats).

1. No boats were aboard during the test.

2. Generators #2 and #3 were operated under normal load after Test A.

There is no evidence of any damage. Generator #1 was not operable prior to the test, having been cannibalized. Its condition was not changed by the test.

V. Piping Systems.

Undamaged. All piping systems have been tested under normal working pressures.

W. Miscellaneous.

No damage is evident in the galley, laundry, or machine shop equipment.

TECHNICAL INSPECTION REPORT

SECTION III - ELECTRICAL

GENERAL SUMMARY OF ELECTRICAL DAMAGE

I. Target Condition After Test.

(a) Drafts, list, general areas of flooding, sources.

1. Drafts and list were the same as before test A.

2. There was no flooding.

(b) Structural damage.

There was no structural damage in way of electrical equipment.

(c) Damage.

No damage occurred to electrical equipment due to test A.

II. Forces Evident and Effects Noted.

(a) Heat.

No evidence of heat in way of electrical equipment.

(b) Fires and explosions.

There were no fires or explosions in way of electrical equipment.

(c) Shock.

There was no evidence of shock in way of electrical equipment.

(d) Pressure.

There was no evidence of pressure in way of electrical equipment.

(e) Effects peculiar to the Atom Bomb.

Radiant heat was evident on exposed surfaces. No other effect peculiar to the Atom Bomb was noted. The radiant heat had no apparent effect on any electrical equipment.

III. Effects of Damage.

(a) Effect on electrical equipment and ship control.

No damage was apparent to electrical machinery or ship control.

(b) Effect on gunnery and fire control.

No damage was apparent.

(c) Effect on watertight integrity and stability.

No electrical damage affected watertight integrity or stability.

(d) Effect on personnel and habitability.

No electrical damage affected personnel or habitability.

(e) Total effect on fighting efficiency.

No electrical damage affected the fighting efficiency of the vessel.

IV. General Summary of Observers Impressions and Conclusions.

No damage was evident on any electrical equipment on this vessel. It appears that the effects of the Atom Bomb at the distance of this vessel from the center of the blast are not such as to require special designs or installation arrangements for electrical equipment.

V. Recommendations.

None.

SECTION III

PART C - INSPECTION REPORT

SECTION C - ELECTRICAL

A. General Description of Electrical Damage.

(a) Overall condition.

The overall condition of the electric plant is the same as before the test.

(b) Areas of major damage.

None.

(c) Primary causes of damage in each area of major damage.

None.

(d) Effect of target test on overall operation of electric plant.

1. Ship's service generator plant: No effect.
2. Engine and boiler auxiliaries: No effect.
3. Electric propulsion: Not applicable.
4. Communications: No effect.
5. Fire control circuits: No effect.
6. Ventilation: No effect.
7. Lighting: No effect.

(e) Types of equipment most affected.

None.

B. Electric Propulsion Rotating Equipment.

Not applicable.

C. Electric Propulsion Control Equipment.

Not applicable.

D. Ship's Service Generators.

No damage.

E. Emergency Generators.

Not applicable.

F. Switchboards and Distribution Panels.

No damage.

G. Wiring, Wiring Equipment and Wireways.

No dmage.

H. Transformers.

No damage.

I. Submarine Propelling Batteries.

Not applicable.

J. Portable Batteries.

No damage.

K. Motors, Motor Generator Sets and Motor controllers.

No damage.

L. Lighting Equipment.

No damage.

M. Searchlights.

No damage

N. Degaussing Equipment.

No damage.

O. Gyro Compass Equipment.

No damage.

P. Sound Powered Telephones.

No damage.

Q. Ship's Service Telephones.

Not applicable.

R. Announcing Systems.

No damage.

S. Telegraphs.

No damage.

T. Indicating Systems.

No damage.

U. - I.C. and A.C.O. Switchboards.

Not applicable.

V. F.C. Switchboards.

Not applicable.

SECTION IV

PHOTOGRAPHS

TEST ABLE

AA-CR-227-87-85. View from off starboard bow after Test A.

Fire damage, main deck, frame 48, starboard.

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APPENDIX

COMMANDING OFFICERS REPORT

TEST ABLE

SECRET

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REPORT # 11

COMMANDING OFFICERS REPORT

SECTION I

The condition of LST 220 after test Able was very much the same as before. The drafts upon our return were the same, six (6) feet forward and ten (10) feet aft, with a one (1) degree list to port. There was no evidence of any structural damage and all machinery was operable.

The only observed damage was due to two small fires. A six (6) inch mooring hauser, forward on the starboard side was burned as were two fire hoses aft. The burning of the hoses caused a gear locker on the boat deck to catch on fire and its contents were destroyed. All lines and rigging on the starboard side were slightly charred, giving us a fairly accurate check on the direction of the blast in relation to this ship. This direction I would estimate as being from one hundred and twenty (120) degrees true. The heat of the blast was apparently normal at this distance because only the lines as mentioned above showed any signs of the heat. Evidence of abnormal pressures were observed here however, all our vents and vent ducts were cleaned out, the soot being deposited throughout the interior of the ship.

All in all I would say that there were no peculiar effects to be noted. The ships distance from the center of the blast, approximately two miles, accounts for this no doubt. I think it entirely possible for personnel to have ~~lived aboard, below decks,~~ during the explosion. With protective clothing ~~and some means of~~ protection from the radiological effects we could have ~~existed topside~~ at battle stations.

The water tight integrity, stability and fighting efficiency of this vessel were in no way affected by the explosion or the blast and heat resulting there from.

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CAUTION

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Defense Special Weapons Agency
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TRC

18 April 1997

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER
ATTENTION: OMI/Mr. William Bush (Security)

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency has declassified the following reports:

AD-366588	XRD-203-Section 12
AD-366589	XRD-200-Section 9
AD-366590	XRD-204-Section 13
AD-366591	XRD-183
AD-366586	XRD-201-Section 10
AD-367487	XRD-131-Volume 2
AD-367516	XRD-143
AD-367493	XRD-142
AD-801410L	XRD-138
AD-376831L	XRD-83
AD-366759	XRD-80
AD-376830L	XRD-79
AD-376828L	XRD-76
AD-367464	XRD-106
AD-801404L	XRD-105-Volume 1
AD-367459	XRD-100

TRC 18 April 1997

Subject: Declassification of Reports

AD-801406L ✓ XRD-114.

In addition, all of the cited reports are now **approved for public release; distribution statement "A" now applies.**

Ardith Jarrett

ARDITH JARRETT
Chief, Technical Resource Center